Tennis Ball

This tutorial proposes options to find a tennis ball in a picture.

```
(ns divine-briars
  (:require
    [opencv3.utils :as u]
    [opencv3.colors.rgb :as color]
    [opencv3.core :refer :all]))
```

```
nil
```

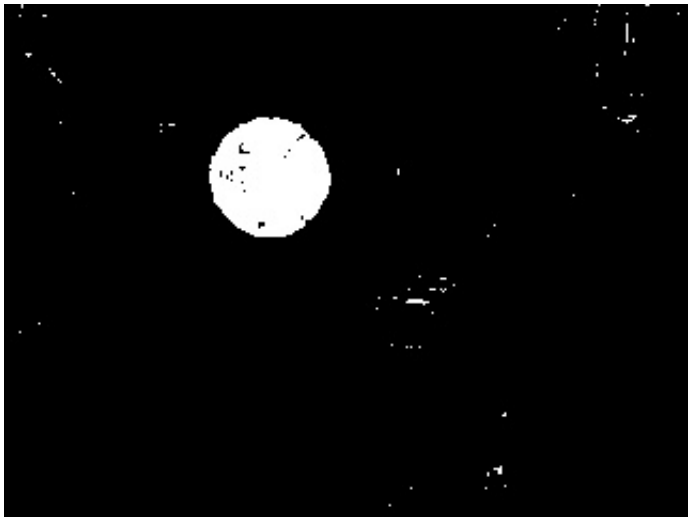
First, let's load the image that will be the base for our image finding exercice.

```
(def img (-> "http://i.imgur.com/uoNRu60.jpg" (u/mat-
from-url) (u/resize-by 0.5)))
(u/mat-view img)
```

Using Hough Circles

```
(def hsv (-> img clone (cvt-color! COLOR_RGB2HSV)))
(def thresh-image (new-mat))
(in-range hsv (new-scalar 50 100 0) (new-scalar 95 255
255) thresh-image)

; the ball is here
(u/mat-view thresh-image)
```



```
(let[ circles (new-mat) output (clone img) minRadius 25
maxRadius 40 ]

(hough-circles thresh-image circles CV_HOUGH_GRADIENT 1
minRadius 120 15 minRadius maxRadius)

(dotimes [i (.cols circles)]
  (let [ circle (.get circles 0 i) x (nth circle 0) y
(nth circle 1) r (nth circle 2)  p (new-point x y)]
  (opencv3.core/circle output p (int r) color/plum 2)))

; the ball is detected
(u/mat-view output))
```

Method2: Using Find Contours

```
(let[ hsv (-> img clone (cvt-color! COLOR_RGB2HSV))
      thresh-image (new-mat)
      contours (new-arraylist)
      output (clone img)]

(in-range hsv
          (new-scalar 50 100 0)
          (new-scalar 95 255 255)
          thresh-image)

(find-contours
```

```
    thresh-image
    contours
    (new-mat)  ; mask
    RETR_LIST
    CHAIN_APPROX_SIMPLE)

  (dotimes [ci (.size contours)]
   (if (> (contour-area (.get contours ci)) 100 )
    (draw-contours output contours ci color/plum 2)))

  (u/mat-view output))
```